



# Baltimore Biodiesel

*Micro consumer co-op contends with growing pains in quest for cleaner air*

By Stephen Thompson, Assistant Editor

**"T**his is how we're going to take over the world," says Ilya Goldberg, pointing to an unassuming metal tank with a hose and nozzle.

Goldberg is the technical guru for the Baltimore Biodiesel Cooperative, a group of about 150 owners of diesel cars and trucks who have banded together to purchase a "greener" fuel for their vehicles. The 500-gallon tank, ensconced in a metal cage for protection from thieves and vandals, is where members come to fill up.

The tank is located next to an old industrial building now housing a garden supply store, a small farmers market and a small collection of food retail stands. The owners of the building let the cooperative use the space, including a small information booth on the inside, for free.

## Easing access

The co-op, which was founded in 2006 and began operation last year, sells about 10,000 gallons annually — not a large amount. But Goldberg says increasing that total should be easy, once a new electronic self-serve sales system

is up and running.

Currently, the tank must be attended by a volunteer, who unlocks the cage and oversees each transaction. This dependence on volunteers means that the filling station is open only for 3 hours each Friday evening and Saturday afternoon.

One customer on a recent Friday evening is an architect who says he used to design "green" buildings, but then decided he wanted to do more than design "one building at a time." He now consults for environmental causes.

"I wanted a car that reflected my convictions," he says as Goldberg proudly shows him the new fueling access system. He considered a hybrid, but chose a diesel car because he considers it more environmentally-friendly if run on biodiesel.

Mark Eckley is another customer and volunteer, a friend of Goldberg's who was at first a little wary of putting strange stuff in his fuel tank. "But Ilya convinced me," he grins. "Besides, I'm from Texas, and truckers there use it, so I figured it wasn't fly-by-night."

## Fighting misconceptions

The cooperative often finds itself fighting misconceptions about biodiesel. "Mechanics tell people 'Oh, you'll ruin your engine,'" says Goldberg. Problems caused by biodiesel brewed in people's garages may be partly to blame. Another issue, says Goldberg, is the "food versus fuel" debate.

Developed by Goldberg and financed with a grant from the city of Baltimore, the self-serve system uses a credit-card



Left: Dr. Bob fills “Maryland’s only biodiesel art car” at the co-op’s biodiesel filling station. Above: The co-op maintains an information booth (upper right) inside the warehouse next to the biodiesel filling station. USDA photos by Stephen Thompson

“swiper” and PIN number pad to determine the identity of the user. It queries a server through a high-speed Internet connection to make sure the user is a co-op member, unlocks the cage and starts the pump. It also records the transaction and bills the member’s credit card account.

Goldberg says that after the customer’s account is billed, the number of the credit card is discarded to protect customer privacy. The high-speed connection is provided gratis by a local Internet provider called Believe Wireless. The cooperative plans to make the system available to other biodiesel co-ops once any problems have been worked out.

Goldberg sees this system as the key to expanding the co-op.

“The issue with scalability was volunteer hours,” he says. “Once we get this system up and running, we’ll have access 24/7.” He figures that with the current membership, doubling sales should be easy. And he sees much greater growth ahead.

The co-op was approached by a local advertising firm that mounts billboards on trucks. The ad company decided not to participate because of the limited hours of availability.

Goldberg figures that if the co-op can land that fleet account, factoring in membership growth and a couple more outlets, a 10-fold growth in business is possible.

Goldberg has designed the fueling station to make setting one up as simple as possible. Along with the access system, he has included provisions for a solar panel for power and a cell phone Internet connection. “That way we can be completely off the grid,” he says. “We want to drop these things here,

there and everywhere.”

The cooperative is run on a volunteer, nonprofit basis by enthusiast-activists and hobbyists. Members pay a \$70 refundable fee to join, plus a \$30 annual fee. It’s a spin-off of a public-service organization called Charm21, which describes itself as “dedicated to implementing results-oriented programs that promote the use of renewable fuels and resources in the Greater Baltimore region.”

### Plan to process own fuel dropped

Charm21 set up the biodiesel cooperative, originally intending to produce its own product from waste cooking oil from restaurants and other local sources. But the practical problems of small-scale biodiesel production, including providing a consistent, high-quality product and finding the people to run the plant, cause the fledgling co-op to reconsider. “We wanted to expand the market and educate the public,” says Goldberg, “Not spend our resources experimenting.”

As he’s talking, a middle-aged woman in a hybrid drives up. Her car doesn’t use diesel. She’s here to find out if she can recycle some expired cooking oil through the co-op, but is disappointed to learn that the co-op doesn’t make its own biodiesel. “We get a lot of this,” says Goldberg.

But she goes away happy after someone suggests that she could burn the oil in a lamp. She does have an oil lamp, doesn’t she? “Well, sure,” she says. “You mean a regular oil lamp? I never thought of that.”

The next step in expanding the biodiesel market is a

proposed location at a local concert venue just outside of the city. “We get a lot of band tour buses coming in to fill up on green fuel,” says Goldberg. Singer Willie Nelson’s bus is one example; Nelson has even published a book, “On the Clean Road Again,” advocating biodiesel as a means of reducing dependence on foreign oil and saving the family farm.

## Getting bugs out

But first, some bugs must be fixed. Today, the fuel is coming out at an excruciatingly slow rate. The problem seems to be a clogged filter. When the filter is changed, things speed up for a while, but the flow soon slows down again.

Speculation focuses on the filters themselves — are they compatible with biodiesel? Could the filter media be swelling up? Or is there some crud in the tank that quickly clogs the filter? Mark theorizes that the last delivery may have been from the dregs of the winter fuel tank, containing sediment that wasn’t properly filtered.

This isn’t the only time problems have dogged the co-op. In October, 2007, a delivery of biodiesel with a relatively high “gel point” stopped business in its tracks. The fuel, apparently made from animal fat, turned solid when the temperature fell below 52 degrees Fahrenheit.

“We had two tons of Crisco!” says Goldberg.

Being stuck with what amounted to a tank full of lard was bad enough, but the real damage was suffered by members’ vehicles. Many had to be towed to garages and have their fuel systems flushed.

Meanwhile, the tank was emptied by renting two kerosene heaters, each resembling a giant blowdryer, and training them on it, then pumping the stuff into barrels. The fuel now resides on a member’s farm, waiting for summer, when it should work just fine. Goldberg chuckles that “there’s probably a tank farm somewhere filled with Crisco.”

The co-op now sells a “winter mix” during cool-weather months consisting of half soy-oil biodiesel and half kerosene. “It’s what works,” says Eckley.

## Dealing with distributors

The “Crisco episode” only highlighted a greater issue. The co-op, because of its small size and lack of transport, has to buy its biodiesel from petroleum distributors — who, it turns out, are not always reliable. “It’s really touch and go,” says Goldberg.

Part of the problem is that distributors are not very knowledgeable about biodiesel. “They just don’t know the product,” Goldberg says. “They’re just dabbling in biodiesel. They could talk to us, but they don’t, because we’re just a little co-op. So they talk to their buddies in the oil industry, but they don’t know much either.”

Now the co-op always demands an ASTM sheet — a document telling the precise characteristics of the batch of fuel being purchased.

Not being taken seriously by suppliers has caused other difficulties. “One time, the truck just didn’t show up,” says

Goldberg. “I felt like asking them, ‘Is this what you’d do to a back-up generator for a hospital or something?’”

In addition, suppliers sometimes try to back down from obligations. “We get a lot whining. They’ll ask us ‘why don’t you buy B20 (diesel fuel containing 80 percent petroleum)?’ Well, because we don’t want B20!”

Going through middlemen also raises costs, as does being able to buy only 500 gallons at a time. The small amount means that the co-op can’t get a long-term contract.

Eckley says that the prices charged by the distributors often don’t seem to have much to do with what’s going on in the market. “It’s like, ‘Pick a prime number,’” he grumbles. Co-op members are currently paying about a 60-cent premium per gallon over regular petro-diesel.

## Co-op eyes own tanker

The co-op’s answer to these uncertainties is to buy a fuel tanker truck. Some funds remain from the grant used to develop the self-serve system, and the cooperative has arranged for additional financing with one of its members. Currently, members are looking for a used truck in the 2,000- to 3,200-gallon range. There’s only one hitch: “Right now we have the money to buy the truck, but not to fill it up!” grins Goldberg.

Having the truck will serve dual purposes. First, the cooperative can forget about middlemen and go to the source for its product; several manufacturers are within driving distance, and a local plant is nearing completion. That would enable it to pick and choose its product at lower prices.

There’s another advantage. The cooperative acquired a salvaged, 1,000-gallon tank in an attempt to increase storage capacity, but was hindered by local building codes prohibiting fuel tanks larger than 500 gallons next to a building. However, there are no regulations forbidding parking a 3,000-gallon tanker truck in the same spot, so the truck could be both transport and storage facility.

## Committed customer-members

A small, but steady, stream of diesel vehicles — mostly European sedans — comes to fill up at the co-op. One is colorfully painted with American flags and other symbols. Its owner is Bob Heironimus, who calls himself Dr. Bob and who boasts that his is “Maryland’s only biodiesel art car.”

Dr. Bob says that the car illustrates various influences on the founding of the United States, and one of the flags he flies on it is in support of America’s missing prisoners of war.

He’s an enthusiastic promoter of biodiesel. “I’d buy it if it cost \$12 a gallon,” he says.

Taking over the world might not be on the agenda just yet, but the members of Baltimore Biodiesel are happy just doing their part to make Baltimore’s air a little cleaner. ■